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ABSTRACT

This paper provides an overview of the Media Equipped Classroom (MEC), i.e., a centrally scheduled or departmentally scheduled teaching space with permanently installed media and classroom support technology designed to enhance the quality of teaching when properly utilized. Specific emphasis is given to the teaching station at the State University of New York at Buffalo, which has three MECs where the types of equipment include an overhead projector, 35mm slide projector(s), a 16mm motion picture projector, a videotape player, an audiocassette tape recorder/player, a phonograph, sound reinforcement, a laser pointer, a microcomputer, a video/data monitor or CRT projector, projection screens, and custom designed cabinets for secure storage of the equipment. The paper also describes a fourth MEC, which is referred to as an Educational Technology Equipped Classroom (ETEC). It features a custom designed teaching station (modular podium/attached side cabinet) that houses a variety of electronic presentation systems including a microcomputer that supports 80386 applications; a CCD camera platform that converts transparencies, hardcopy, and small, three-dimensional objects to video); a VideoMate, which converts 35mm slides to video; and a VHS videotape player. The "electronic images" are displayed on a large screen with a data/video projector mounted on the ceiling. A public address system and audio recording are controlled from the teaching station, and a laser pointer is also available. This report includes a brief history of the MEC and discussions of the rationale for change and faculty input, orientation, and assessment of the most recent facilities. Twenty-one appendices include CAD (computer assisted design) drawings of the Jacobs 110 Instructor Station, equipment cost data, a purchase requisition and bid specification, and a questionnaire for ETEC's evaluation with tabulated faculty responses and written comments. (BBM)

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# Media Equipped Classrooms:

# Giving Attention To The Teaching Station

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## Forward

The purpose of this paper is to give an overview of the Media Equipped Classroom (MEC) with specific emphases on the teaching station at the State University of New York at Buffalo. Topics to be covered include a brief history of the Media Equipped Classroom, the rationale for change, design of the fourth Media Equipped Classroom and how the components are incorporated into a custom built podium. Faculty input, orientation and assessment of the most recent facilities (Jacobs 110 Classroom) will also be discussed.

Although the overall responsibility for planning and implementing this project was assigned to the presenters, it could not have been successfully completed without the assistance and expertise of many of the staff in Educational Technology Services. In particular, the presenters wish to acknowledge Dr. Richard Lesniak, Director of Educational Technology Services, John Hayes, Supervisor of Media Equipment Services, William Maiman, Project Engineer, Assistant Engineers Mark White and James Crone, and Student-Assistants Jeffrey Gritsavage (a Civil Engineering student who developed the CAD drawings and a ergonomic analysis of the teaching station) and Aaron Somerstein (a School of Management student who provided general project assistance including configuring the hard drive).

## Background

State University of New York at Buffalo:

The State University of New York at Buffalo is the most comprehensive unit of the 64 campus SUNY system, enrolling over 26,000 undergraduate and graduate students. As one of four university centers, its mandate is to concentrate on upper division and graduate programs and research. It offers 93 undergraduate, 113 master's and 83 doctorate degree programs, as well as four professional degree programs and 14 graduate certificates. Faculties include not only the traditional arts and sciences divisions of Arts and Letters, Natural Sciences and Mathematics, and Social Sciences, but also the Undergraduate College and Schools of Architecture, Dental Medicine, Education, Engineering, Health Related Professions, Library Studies, Law, Medicine, Nursing, Pharmacy and Social Work.

These diverse programs are housed on two separate campuses. The older South Campus in the City of Buffalo has been refurbished into a Health Sciences Center. A large new North Campus was recently completed in the suburb of Amherst, approximately five miles from the Health Sciences campus.

Educational Technology Services:

Educational Technology Services is a university-wide media and educational technology support service with a full-time staff of 34 and a part-time staff of 80 student-assistants. Educational materials are acquired, produced, stored and distributed within the university and to other institutions within the region. Professional and technical consultation in the design, production and utilization of communications media is available to faculty, staff, students and community. Educational Technology Services are carried out by four major units: Media

Resources, Engineering Services, Graphic Arts and Photography, and the Information Technology Center.

Media Resources:

Media Resources has eleven full-time staff and is made up of three divisions: Media Equipment Services, Media Library and Instructional Systems Support. Their mission is to provide media equipment, media materials and assistance in utilization and development of programs and materials in support of classroom instruction. These media resources are also available in support of University research, conferences and special events, student activities, public service and administrative activities. Media Equipped Classrooms are an integral part of Media Equipment Services and Instructional Systems Support.

Engineering Services:

Engineering Services focuses on providing internal technical support for the development, utilization and maintenance of educational technology equipment, systems, facilities and programs. The eight full-time staff are involved in planning activities, systems designs, installation projects and the repair of equipment. Consultation is also provided to the university community on equipment purchases and systems/facilities design requiring educational technology. The design and installation of the Media Equipped Classrooms were carried out by Engineering Services.

**Introduction - Media Equipped Classroom**

In 1989, three traditional classrooms were renovated into Media Equipped Classrooms at the State University of New York at Buffalo. A Media Equipped Classroom (MEC) is defined as a centrally scheduled or departmentally scheduled teaching space with permanently installed media and classroom support technology designed to enhance the quality of teaching when properly utilized.

The traditional mode of supporting faculty with audiovisual equipment is not always efficient or effective. At present, faculty must call and reserve their AV equipment. AV equipment is then taken out of a storeroom, delivered and set-up in the classroom before the scheduled time of use and then removed from the classroom immediately at the close of the classroom session. Media Equipment Services is responsible for delivering and setting-up media equipment in approximately 200 classrooms and lecture halls on the North and South Campuses. Given the volume of work orders, limited staff resources, lack of sufficient equipment and the logistics of constantly moving people, equipment and instructional materials around, it is often difficult to satisfy the media needs of the faculty. This is especially true for faculty requiring the use of the computer and video/data display in the classroom.

The Media Equipped Classroom has overcome many of the difficulties described above. The advantage of a MEC classroom is that faculty, when assigned to one of these renovated spaces, have immediate access to a variety of media and technology when teaching their courses. They no longer have to call and reserve equipment. The types of equipment installed in these MEC spaces

include an overhead projector, 35mm slide projector(s), 16mm motion picture projector, video tape player (1/2" VHS and/or 3/4" U-Matic), audio cassette tape recorder/player, phonograph, sound reinforcement, laser pointer, microcomputer, video/data monitor or CRT projector, projection screens and custom designed cabinets to securely store this equipment.

An integral component of the Media Equipped Classroom is the availability of voice and data lines. A auto/dial telephone is installed in each MEC cabinet that terminates at the Media Equipment Services office. In the event of a equipment failure or an operational problem the instructor can have immediate contact with a trained media specialist for assistance. In addition, the instructor can also place calls to the Office of Public Safety for emergencies and the Physical Plant in the event there is a problem with the facilities (heating/cooling, chalk, cleanliness, etc.). A data line is also provided which will allow the instructor to interface with a VAX or IBM mainframe computer.

It is the responsibility of the instructor to open the media cabinets and set-up the equipment to be used for each class session. At the conclusion of each class session all equipment must be placed back into the media cabinets and the doors properly secured. Access is through a combination lock. At the start of each semester an orientation session is conducted and a laminated card with the combination is given out.

These three Media Equipped Classrooms have met with tremendous success. They are scheduled from 8:00 am to 10:00 pm every day when classes are in session. Unfortunately, the design of these MEC classroom did not take into consideration the teaching station in front of the room. When an instructor wished to use a microcomputer he/she had to open the MEC cabinet, pull out the microcomputer's display monitor and keyboard (the CPU stayed inside the MEC cabinet) and place it on a desk. There was a mess of cables to contend with. Proper lighting at the teaching station was always a problem because the classroom had to be darkened to display data through a GE Imager 310 large screen projector. These MEC classrooms, although a vast improvement over the traditional classroom, were not as the staff had hoped for, nor did they incorporate the latest in presentation technology.

**Educational Technology Equipped Classroom -- Jacobs 110**

The fourth Media Equipped Classroom, currently referred to as a Educational Technology Equipped Classroom (ETEC), incorporates some of the latest presentation technology. It was designed to support the curriculum in the School of Management and was ready for the beginning of the 1991 Fall semester.

This ETEC classroom features a custom designed teaching station (modular podium/ attached side cabinet) that houses a variety of electronic presentation systems including a IBM PS/2 microcomputer (model 55 SX which supports 80386 applications), a Wolf Visualizer (a CCD camera platform that converts transparencies, hardcopy and small, three-dimensional objects to video), a Navitar VideoMate (converts 35mm slides to video) and a VHS videotape player. These "electronic" images are displayed on a large screen with a G.E. Imager data/video projector mounted on the ceiling. Sound reinforcement (P.A. system) and audio recording are controlled from the teaching station. A laser pointer is also available.

Like the first three MEC classrooms, voice and data lines are an integral part of this Educational Technology Equipped Classroom. A auto/dial telephone is installed in the teaching station that terminates at the Media Equipment Services office. In the event of a equipment failure or a operational problem, the instructor can have immediate contact with a trained media specialist for assistance. In addition, the instructor can place calls to the Computing Center (DCA/Ethernet connections), School of Management Computer Laboratory, Office of Public Safety and the Physical Plant. A data line is also provided which will allow the instructor to interface with a VAX or IBM mainframe computer if required.

A unique feature of the Jacobs 110 ETEC classroom is that this classroom is connected to the School of Management's Local Area Network (LAN). When the IBM PS/2 computer is turned on, it automatically boots up into the School of Management's LAN system. The advantage to the instructors teaching in this classroom is that they can incorporate demonstrations using the LAN's software and data files. There is no need to take valuable class time to load a software program into the hard drive of the IBM computer.

The LAN is wired using a Ethernet topology, the standard chosen by the University for networking computers. The Jacobs 110 ETEC classroom is one of 40 IBM PS/2 workstations connected to the LAN within the School of Management. The network uses an IBM PS/2 Model 70 personal computer as a file server. The file server's 120 MB drive stores the Novell and DOS operating systems as well as all the necessary application software and printing utilities.

At the workstation level ( e.g., the Jacobs 110 ETEC classroom), the user ID is the workstation. Each workstation has a PROM chip and a Ethernet board to make the connection to the file server when the work station is turned on and to identify that particular workstation. This configuration allows all processing to be done at the Jacobs 110 ETEC workstation. Using the Novell feature of distributed processing, the burden of most of the input/output requests is handled by the memory of a individual workstation within the network. This feature prevents the typical slow down problem many networks experience when the server must use its own memory to manage input and output requests from all the other workstations on the LAN. Approximately 40K of the memory in the Jacobs 110 workstation is used for the network shell. The shell interprets each request made by the user and directs the request to either the file server or DOS, depending on the type of request.

The Planning Process:

A critical element in the planning and implementation of this Educational Technology Equipped Classroom was gathering input from the School of Management faculty. The Director of Educational Technology Services and the Associate Director - Media Resources met with the Dean and a faculty committee to discuss their needs and to present to them some of the latest developments in presentation technology. After their initial input, several informal review sessions were held with the faculty to keep them appraised of developments and to gather appropriate feedback. It was felt from the very beginning that faculty input was absolutely essential if this classroom was to be accepted and fully utilized.

Some of the concerns expressed by the faculty included equipment reliability, proper servicing of the equipment, staff assistance in the event of equipment malfunction, a full range

of media capability including video, slides, overhead transparencies, hard copy as well as computer display. The School of Management faculty are heavy users of computer display using a LCD panel/overhead projector in their classroom presentations; however, most consider that type of technology inadequate.

One concern expressed by some faculty who had experience using the earlier MEC classrooms was the amount of time they had to spend opening up the MEC cabinets, pulling out the equipment, setting it up and then securing the equipment at the close of the class session. Although these faculty liked using this type of classroom, this added burden detracted from the amount of time they could spend interacting with individual students before class began and at the close of class.

Implementation:

A classroom assessment was carried out by the Engineering Services staff utilizing criteria developed for the earlier MEC classrooms. The assessment would determine what problems, if any, existed that would prevent or hinder the proper utilization of media equipment and other kinds of classroom support technology. Issues such as viewing distance, site lines, window blocking, zoned lighting, electrical outlets, etc., all affect proper utilization.

The classroom selected (Jacob 110) has a student seating capacity of 83 and met all of the basic criteria. An added feature was that this was a tiered classroom with no windows. Zoned incandescent lighting was already in place as well as an electric wall screen. CAD drawings depicting room layout and site lines are in the Appendix.

The rehab of the classroom took place over the Summer recess and was carried out by both the trades staff of the Physical Plant and the Engineering Services staff. The teaching station (podium and side modular cabinet) was permanently fixed in place and conduit run for electrical service and control circuits. All conduit was either trenched in the floor or run in the ceiling. A distributed speaker system was installed in the ceiling as well. All component installation, control circuits and wiring was handled by the Engineering Services staff.

The overall project took about nine months from start to finish. Approximately six months was spent in planning, design and procurement of equipment. Classroom rehab/ installation took approximately three months. Everything was completed in time for the start of the 1991 Fall semester.

The Teaching Station:

The teaching station consists of a custom-built podium and an attached modular cabinet. A search was carried out to determine if a existing podium could be purchased and modified but nothing could be found that would meet the needs of this ETEC classroom. CAD drawings and specifications were developed by the Engineering Services staff and sent to several local custom cabinet makers. Rabco Design, Inc. of Buffalo, New York received the bid and worked closely with the staff to complete this phase of the project.

It should be noted that after considerable discussion a "vertical" format rather than a "horizontal" format was chosen to lay out the equipment that would be incorporated into this teaching station. The constraints in the front of this classroom (width as well as distance from the first row of seats to the projection screen and chalkboard) helped dictate this format. More importantly, consultation with the faculty indicated that most instructors preferred standing and moving around rather than sitting down. Keyboard activity (typing) is generally kept to a minimum with most preparation done outside of the classroom. The vertical layout of the podium allowed the pull-out keyboard to be placed at a comfortable standing height.

The podium and side cabinet were constructed and finished as separate, stand-alone items with 3/4" particle board construction. The interior and exterior were finished with Formica brand laminate. The podium keyboard shelf and the two top shelves in the side cabinet are on slide-out rails and all other shelving is adjustable. The three doors (one cabinet door and two podium doors) are fitted with hinges allowing doors to be opened a full 270 degrees. The doors are opened with matching combination locks.

The top surface of the podium contains a flush mounted monitor and the system's control panel. When the top door of the podium is opened the keyboard shelf can be pulled out. The auto dial telephone, VHS videotape player and computer (CPU) are also accessible in this compartment. The lower door is not accessible by the instructor. This compartment contains various control circuitry to allow the system to operate.

The top surface of the side cabinet serves as a table top for instructor notes and presentation materials. When the door of the side cabinet is opened the Wolf Visualizer can be pulled out, the arm is then extended and the unit is ready for use. Below the visualizer unit is a Navitar slide to video projector that can also be pulled out for ease of loading the carousel tray and turning the projector on. Sufficient storage space exits below the slide projector for the microphone, tape recorder and laser pointer.

The flush mounted panel on the top surface of the podium controls two podium lights, brightness and contrast for the computer monitor, audio level for the VHS player and for an auxiliary input, power and mute switch for the ceiling mounted CRT projector, forward/ reverse switch for the slide to video projector and six switches to control the input to the CRT projector -- Visualizer/VHS player/Slides/PS-2 Computer/RGB1/RGB2. Auxiliary input jacks are located on the top of the side cabinet: two RGB inputs, two 1/4" phone jacks for audio taping and/or playback, two microphone inputs, and a AC duplex plug.

An added feature for ease of instructor utilization is that all components, with the exception of the Navitar slide projector, are automatically turned on when the upper podium door or the side cabinet door are opened. Both doors are wired to electrical interlock switches. There is no need to turn on individual equipment off/on switches. Due to the noise of the cooling fan on the Navitar slide projector, it was felt that this piece of equipment could be turned on only when used for slide presentations.

The audio amplifier for this ETEC classroom is not installed in the teaching station. It is in a outer wall and not accessible to the instructor. Audio levels are pre-set and the system is equalized. The controls for the zoned incandescent lighting are on rheostats (each bank of lights

are on its separate rheostat). Both the lighting controls and the switch for the projection screen are located on the wall directly behind the teaching station and within easy reach of the instructor.

The Appendix contains CAD drawings of the teaching station, a bid specification sent to vendors for the construction of the teaching station, and a list of equipment and components and their cost. Expenditures for equipment and components came to $35,825.00.

Access and Security:

The proper security of the equipment is an integral part of this Educational Technology Equipped Classroom. A system was devised that would help protect the equipment from vandalism, theft and unauthorized removal; yet, allow faculty designated to teach in this classroom ease of access. Instructors have access to the equipment and systems by opening the upper door on the podium and the door on the side cabinet. Each door has a programmable combination lock set up with the same combination. The combinations are changed once a year. Electronic sensor devices are fastened on to the various components (CRT projector, computer, visualizer, etc.) and if someone attempted to remove the equipment without proper authorization an alarm would go off. Campus Security would automatically be alerted through a telephone line. As an added security precaution, this classroom is locked after the last scheduled class of the day (around 10:00 pm) and is opened just prior to the start of the first class session (8:00 am). The classroom is kept locked on weekends (after scheduled Saturday morning classes), holidays and during semester breaks.

**Faculty Orientation:**

Faculty orientation is carried out by the Associate Director - Media Resources prior to the start of classes and during the first week. A list of faculty assigned to teach in this ETEC classroom is obtained through the School of Management. A letter and handout is sent to each faculty member explaining the ETEC program and asking them to attend one of several scheduled orientation sessions or to call and make an appointment.

The on-site orientation takes about one hour. Appropriate staff introductions are made, a formal definition of ETEC is given, and advantages and disadvantages of teaching in this classroom are offered. (It is felt that the advantages far outweigh the disadvantages.) The different types of media and classroom support technology are demonstrated. Access to the teaching station, calling for staff assistance and security procedures are covered as well. Discussion is encouraged and then the remainder of the orientation session is spent with hands-on. Each participant has an opportunity to open the doors (combination lock) to the podium and attached cabinet, set-up the equipment, practice using the equipment and then properly securing the equipment. Upon conclusion of the orientation session faculty are given a laminated, wallet size card with the combination to the locks. A Media Equipment Services staff member will also be available at the beginning of the semester in the event that an instructor needs some assistance.

**Assessment of Educational Technology Equipped Classroom - Jacobs 110**

The Jacobs 110 ETEC classroom has been in use for one full semester. Based on faculty feedback it has been well received. Failures have been minimal. Faculty were having difficulty opening up one of the doors due to a malfunctioning combination lock. The combination locks were replaced around the third week of classes and no further difficulties were experienced in opening the doors. The LAN system failed several times during the first few weeks of classes and those problems were resolved with the Computing Center. About midway through the semester the laser pointer was dropped and had to be replaced. Also, about midway through the semester the Wolf Visualizer had to be recalibrated and a slight modification to the equipment was made as well. Other than those instances cited above no other equipment malfunctions were reported. The system is checked and cleaned at least twice a week by a full-time staff person.

At the conclusion of the 1991 Fall semester a questionnaire was sent to all faculty teaching in Jacobs 110 ETEC classroom. Out of the fifteen questionnaires sent out twelve faculty have responded. In general, everyone who responded was pleased with the technology made available and its ease of use. The most widely used was the Wolf Visualizer followed by the IBM PS/2 computer and then the VHS videotape player and conventional overhead projector. It appears that the P.A. system was used very little. It appears that the faculty had the most difficulty using the Wolf Visualizer (placement and controls) followed by the IBM computer (difficulty with the LAN). The Wolf Visualizer was most used for transparencies followed by hardcopy. As for the quality of the projected image, video was rated the best followed by computer images and then the Wolf Visualizer. Most faculty felt that the facilities helped in meeting course objectives and in providing greater flexibility in presenting course materials. Students appear to be more interested, more attentive and better able to grasp course material. Everyone wanted more classrooms made available like Jacobs 110.

Written and verbal comments vary. Almost everyone was quite pleased with the quality of the computer image projected. Some were critical of the quality of the image of the Wolf Visualizer and many felt that the controls of the Wolf Visualizer were quite awkward to use (poor placement). Some asked for more surface space on the teaching station to lay out their lecture notes and presentation materials. It was interesting to note that some faculty were disappointed that they were not assigned to this ETEC classroom for the Spring semester. Some felt that they could not take full advantage of the technology unless they redesigned their courses and it would be difficult to justify the time or effort it would take unless they were assured of being assigned to teach in a ETEC classroom in the future.

One faculty member, who uses 35mm slides extensively in his teaching, verbally expressed his disappointment in the output of the image being projected. Many of his slides were originally shot in a vertical format. When using the Navitar slide to video projector, valuable information was cut off on the top and bottom of the slide. The camera system in the Navitar slide projector is set up for a horizontal aspect ratio and there is no way to compensate for the "lost" information like one can do with a conventional optical 35mm slide projector.

Further study of both faculty and student reactions will be carried out in the future. A copy of the questionnaire with tabulated responses and written comments is in the Appendix. It should be noted that not all faculty responded to each question.

**Concluding Remarks**

Based on faculty feedback, and where feasible, modifications are planned over the Summer recess to the Jacobs 110 Educational Technology Equipped Classroom. For instance, it may be possible to relocate the control panel for the Wolf Visualizer to the top surface of the podium. Another thought is to reorientate the side cabinet door so the Wolf Visualizer can be pulled out from the far left side rather than from the back. This could possibly reduce the awkwardness of using the visualizer and allow better utilization of the top surface of the cabinet for lecture notes and presentation materials.

Funding has been identified by the School of Management to develop another ETEC classroom. This new classroom is slightly smaller in seating capacity (55 students) and will replicate the existing Jacobs 110 ETEC classroom. Planning is currently underway, rehab and installation will take place over the Summer and be completed in time for the 1992 Fall semester.

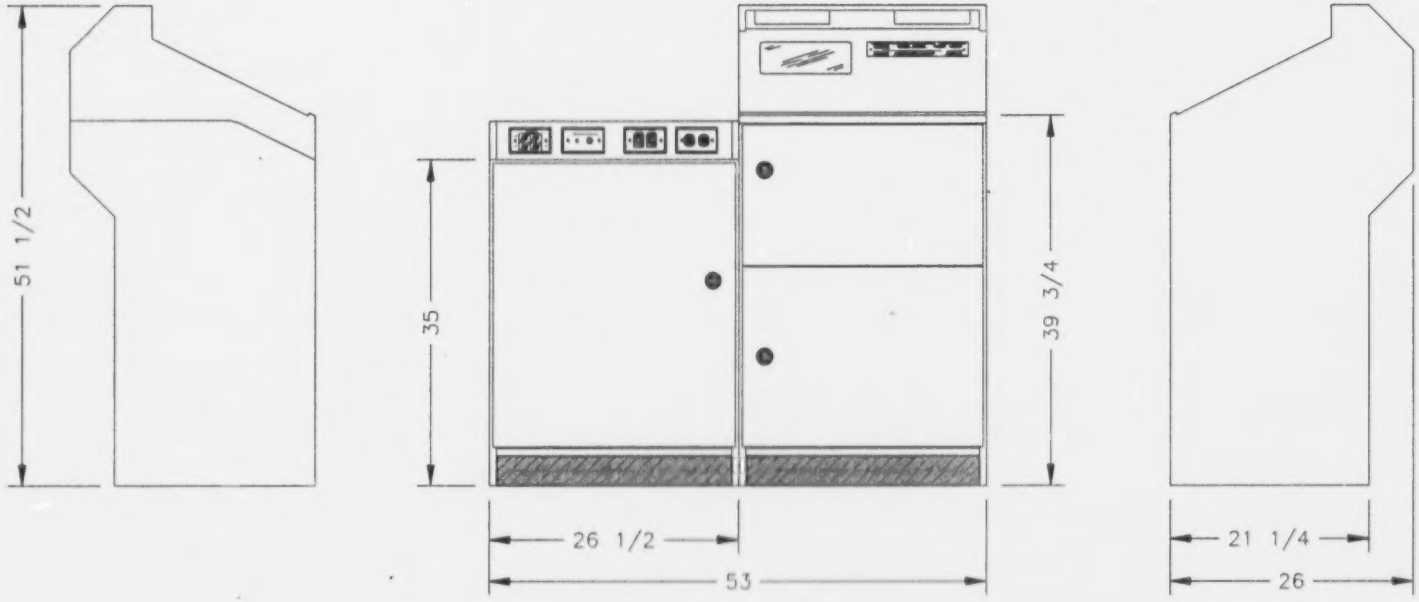
The future looks good for additional Educational Technology Equipped Classrooms. One to two more classrooms will be added in 1993. Also, a Natural Sciences and Mathematics building is under construction on the North Campus which will contain five lecture halls and five classrooms. Each of these NSM teaching spaces will be equipped as ETEC classrooms. This facility will be completed in 1994.

A variety of information is contained in the Appendix. A number of CAD drawings are offered showing the development of the Jacobs 110 instructor station and room layout. CAD drawings of the three earlier Media Equipped Classroom equipment cabinets are also in the Appendix. Please note, the CAD drawings of the base cabinet for the Capen 10 MEC classroom does not reflect a recent revision; which places a PS/2 computer, keyboard and monitor on a pull-out shelf. In this classroom, data is displayed on two NEC data-smart monitors and the ease of instructor utilization appears to be acceptable to the faculty assigned to teach in this facility. The Appendix also contains information regarding the cost of the equipment and components (cost information for the facilities rehab was not available since this was absorbed by the Physical Plant), a copy of the purchase requisition and bid specifications for the custom-built teaching station. A copy of the Jacobs 110 Educational Technology Equipped Classroom Questionnaire with tabulated faculty responses and written comments is also in the Appendix.

In conclusion, the purpose of this presentation was to give an overview of the Educational Technology Equipped Classroom with specific reference to the teaching station at the State University of New York at Buffalo. Although the Jacobs 110 ETEC classroom has only been in service one semester, it has been well received by the faculty assigned to teach in this facility. Plans are moving forward to develop additional ETEC classrooms over the next several years. As more of these ETEC classrooms become available, the shift of Media Equipment Services will be away from the traditional model of delivery and set-up to a more responsive, client centered mode of operation.

## Appendix

1. CAD Drawing of Jacobs 110 Instructor Station - Dimensions in Inches
2. CAD Drawing of Jacobs 110 Instructor Station - Fourth and Current Concept
3. CAD Drawing of Jacobs 110 Instructor Station - Cabinet Doors Closed
4. CAD Drawing of Jacobs 110 Instructor Station - Instructors View
5. CAD Drawing of Jacobs 110 Instructor Station Right Hand Cross-Section with Keyboard Drawer Out
6. CAD Drawing of Jacobs 110 Instructor Station Left Hand Cross Section with Visualizer Drawer Out
7. CAD Drawing of Jacobs 110 Instructor Station Left Hand Cross-Section with Slide-To-Video Drawer Out
8. CAD Drawing of Jacobs 110 Instructor Station Top View of Lectern Work Surface
9. CAD Drawing of Jacobs 110 Instructor Station Control Panel
10. CAD Drawing of Jacobs 110 System Interconnection
11. CAD Drawing of Jacobs 110 Room Layout Before Modifications
12. CAD Drawing of Jacobs 110 Room Layout After Modifications
13. CAD Drawing of Jacobs 110 Room Layout - Speaker Layout
14. CAD Drawing of Media Equipped Classroom Base - Dimensions in Inches
15. CAD Drawing of Tower 125 Media Equipped Classroom Base Cabinet - Initial Concept
16. CAD Drawing of Fillmore 322 Media Equipped Classroom Base Cabinet - Second Concept (with Computer)
17. CAD Drawing of Capen 10 Media Equipped Classroom Base Cabinet - Dimensions in Inches
18. CAD Drawing of Early Version of Capen 10 Media Equipped Classroom Cabinets - Third Concept
19. Jacobs 110 Equipment/Cost Data
20. Jacobs 110 Instructor Station Purchase Requisition and Bid Specification
21. Jacobs 110 Educational Technology Equipped Classroom Questionnaire with Tabulated Faculty Responses and Written Comments




DIMENSIONS IN INCHES

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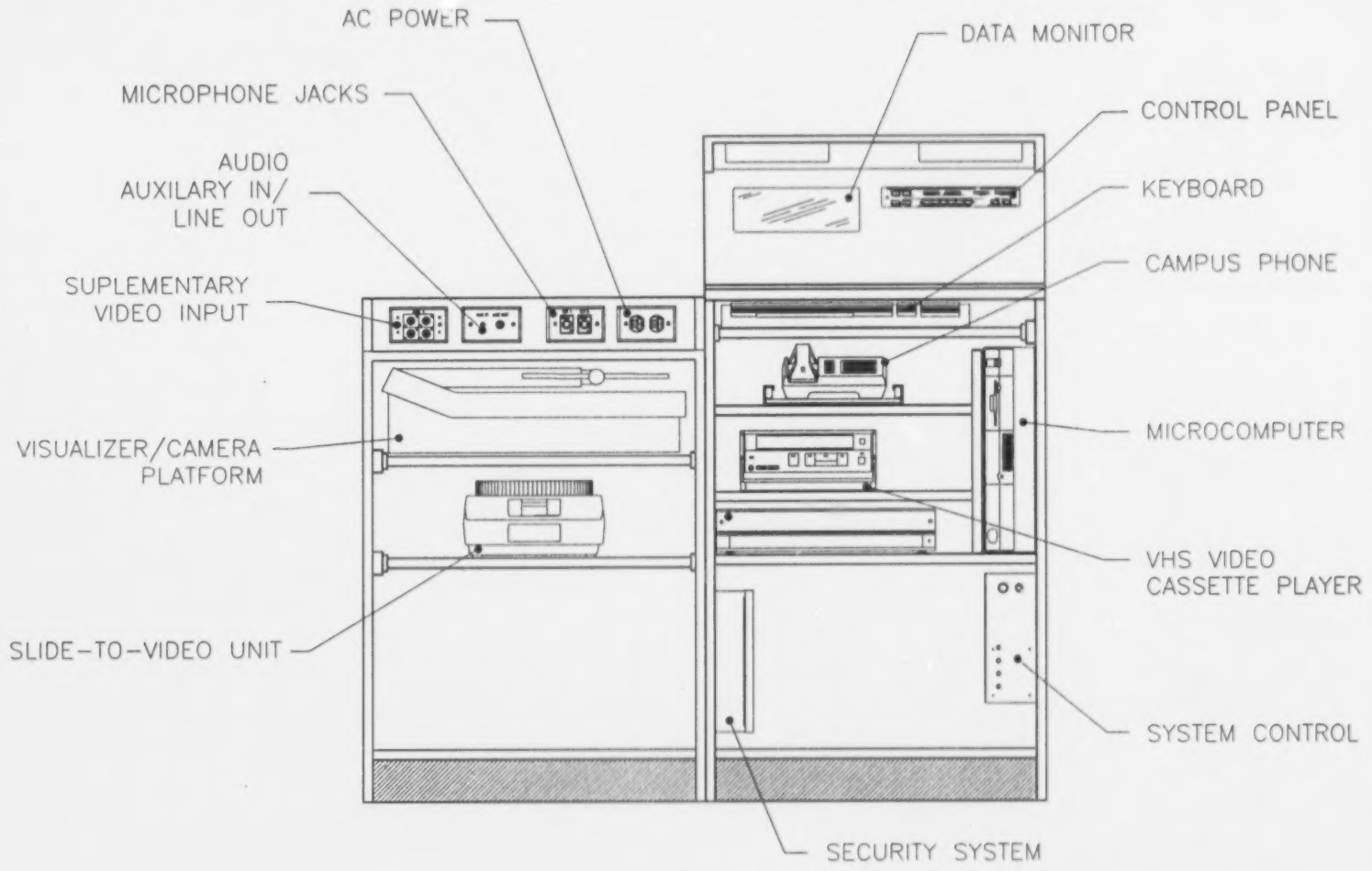


FOURTH AND CURRENT CONCEPT

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Engineering Services (716) 831-3761

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LAST REVISION: 12/26/91
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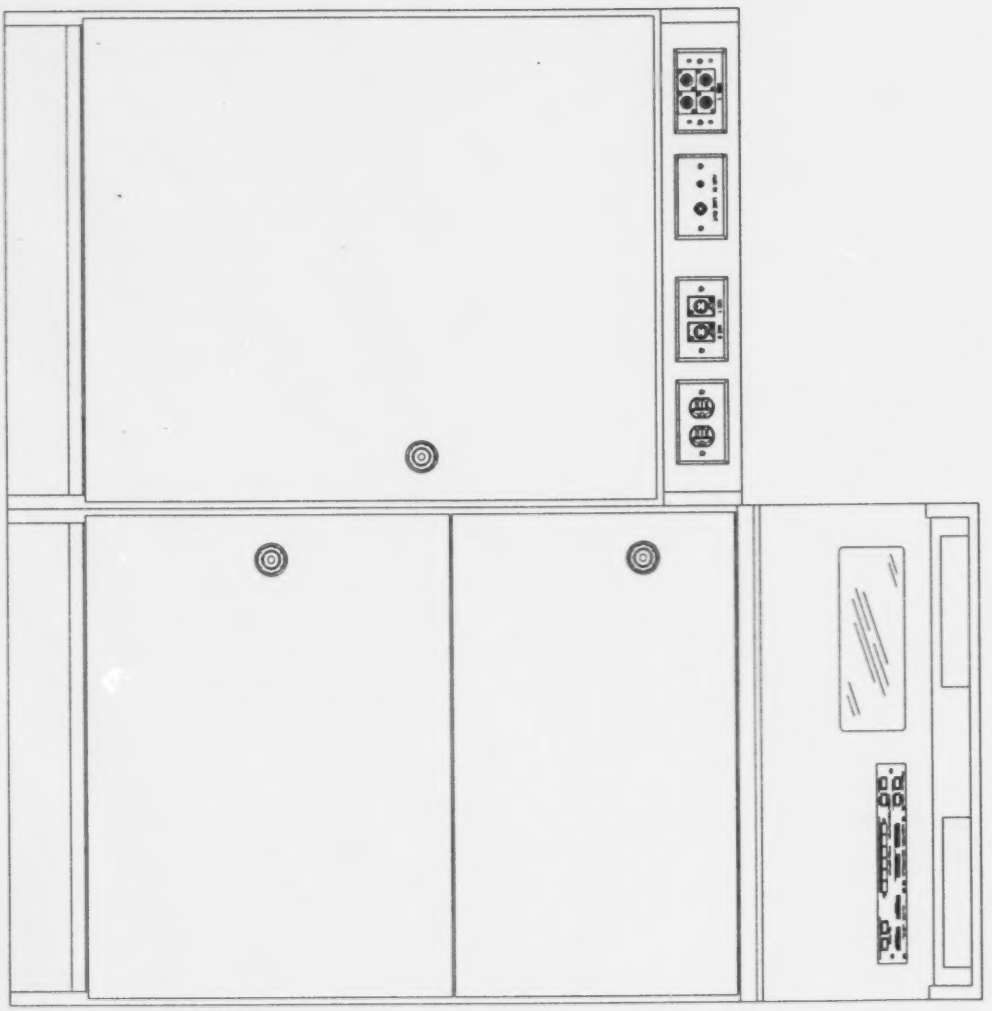
CABINET DOORS CLOSED





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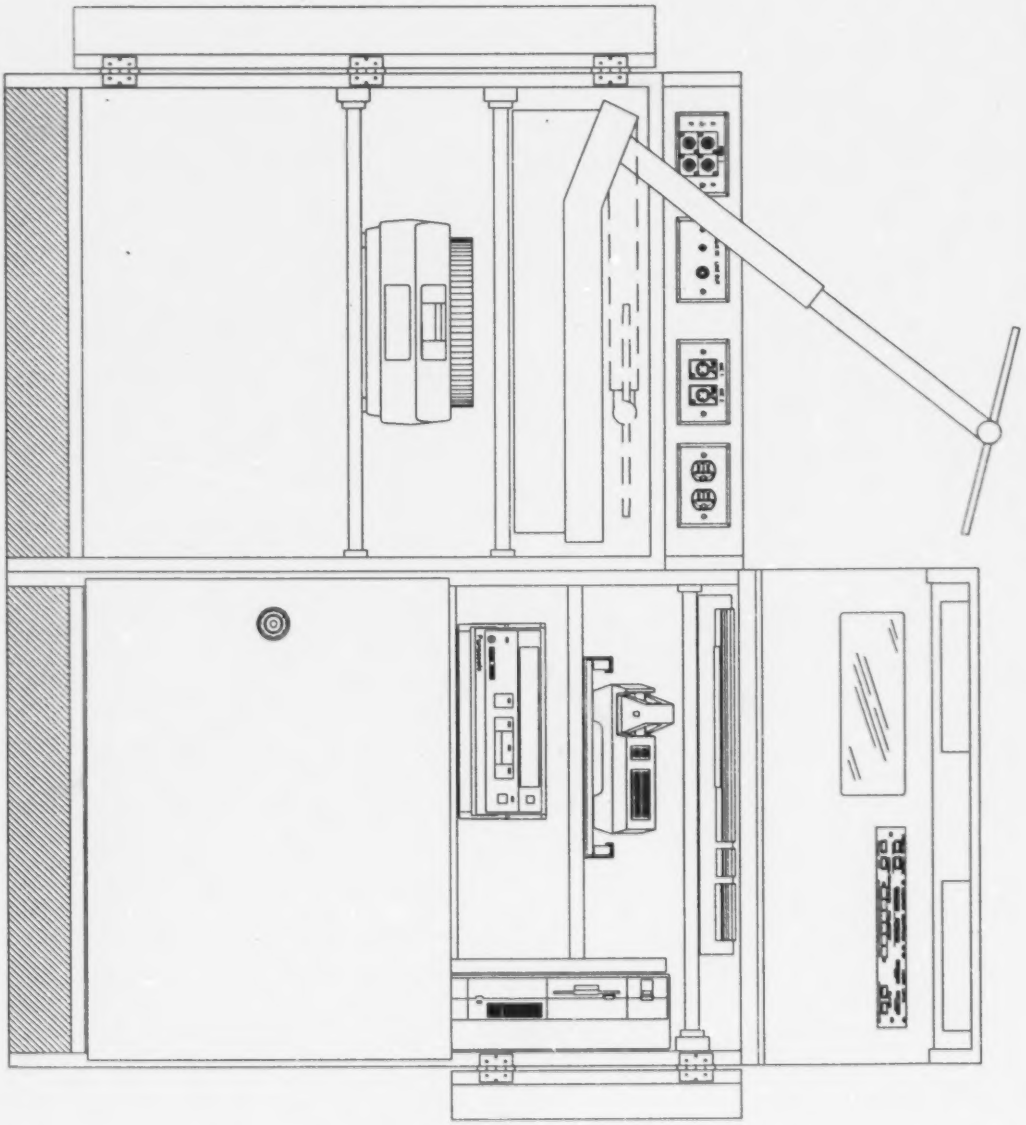
INSTRUCTOR'S VIEW



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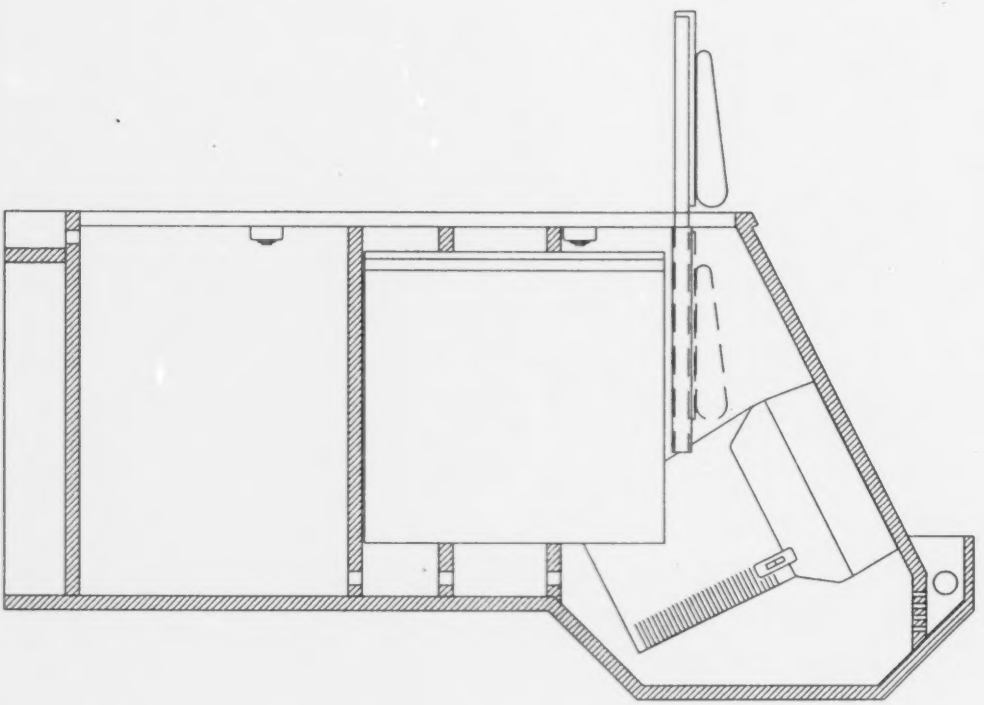
Engineering Services (716) 831-3761

| | | | |
|---|---|---|---|
| DWN. BY: J.S.G. | APP. BY: | | |
| DATE STARTED: 01/28/91 | | | |
| LAST REVISION: 11/27/91 | | | |
| SCALE: NONE | | | |
| FILE NAME: JACP04.DWG | | | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: INSTRUCTOR STATION | SYSTEM: ETEC-1 | # 4 |

RIGHT HAND CROSS-SECTION WITH KEYBOARD DRAWER OUT





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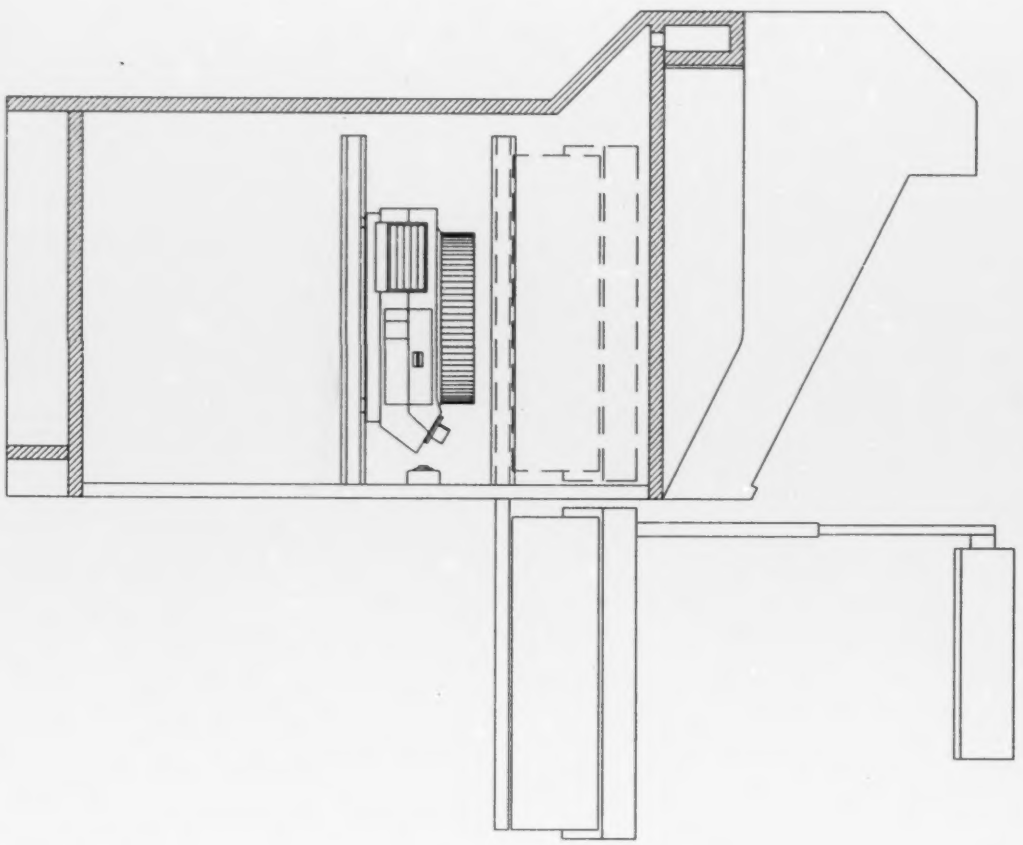
|---|---|---|---|
| DWN. BY: J.S.G. | APP. BY: | | |
| DATE STARTED: 01/28/91 | | | |
| LAST REVISION: 11/27/91 | | | |
| SCALE: NONE | | | |
| FILE NAME: JACP05.DWG | | | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: INSTRUCTOR STATION | SYSTEM: ETEC-1 | # 5 |

LEFT HAND CROSS-SECTION WITH VISUALIZER DRAWER OUT





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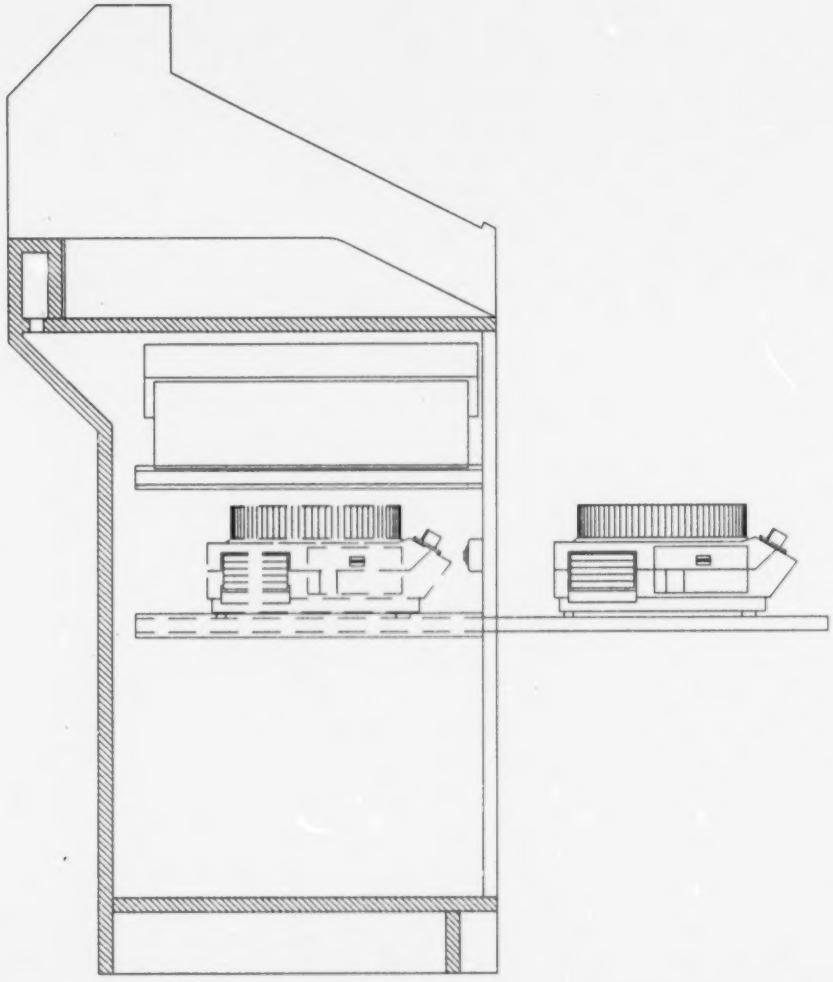
|---|---|---|---|
| DWN. BY: J.S.G. | APP. BY: | | |
| DATE STARTED: 01/28/91 | | | |
| LAST REVISION: 11/27/91 | | | |
| SCALE: NONE | | | |
| FILE NAME: JACP06.DWG | | | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: INSTRUCTOR STATION | SYSTEM: ETEC-1 | # 6 |



LEFT HAND CROSS-SECTION WITH SLIDE-TO-VIDEO DRAWER OUT

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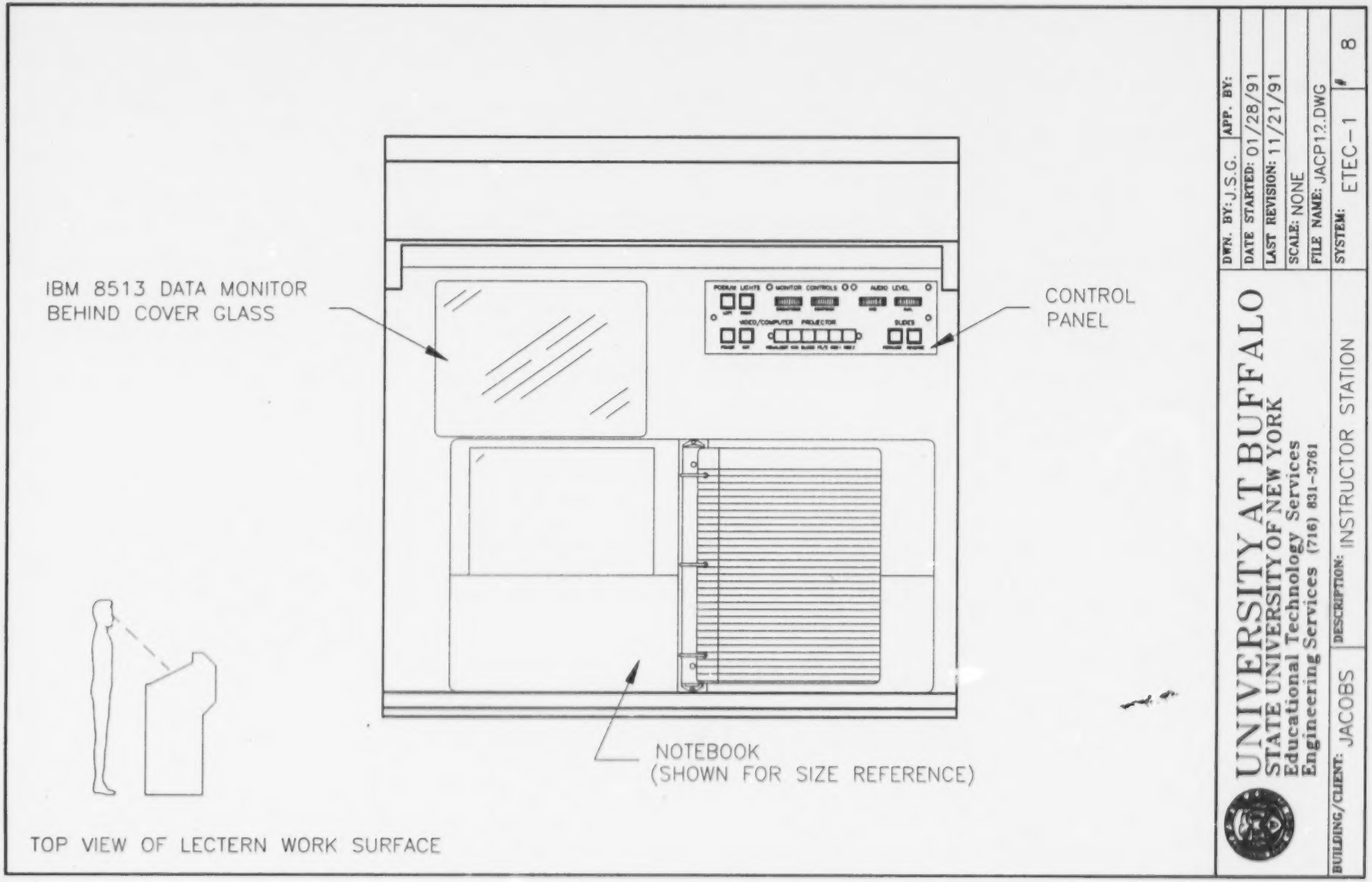
| | |
|---|---|
| DWN. BY: J.S.G. | APP. BY: |
| DATE STARTED: 01/28/91 | |
| LAST REVISION: 11/27/91 | |
| SCALE: NONE | |
| FILE NAME: JACP07.DWG | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: INSTRUCTOR STATION |
| SYSTEM: ETEC-1 | 7 |

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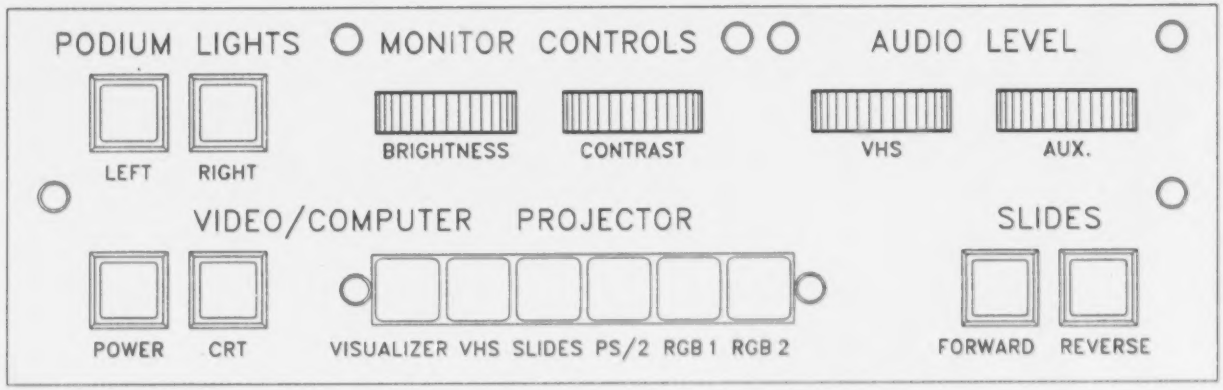
DWN. BY: J.S.G. | APP. BY:
DATE STARTED: 01/28/91
LAST REVISION: 11/21/91
SCALE: NONE
FILE NAME: JACP12.DWG
SYSTEM: ETEC-1 | 8

BUILDING/CLIENT: JACOBS | DESCRIPTION: INSTRUCTOR STATION

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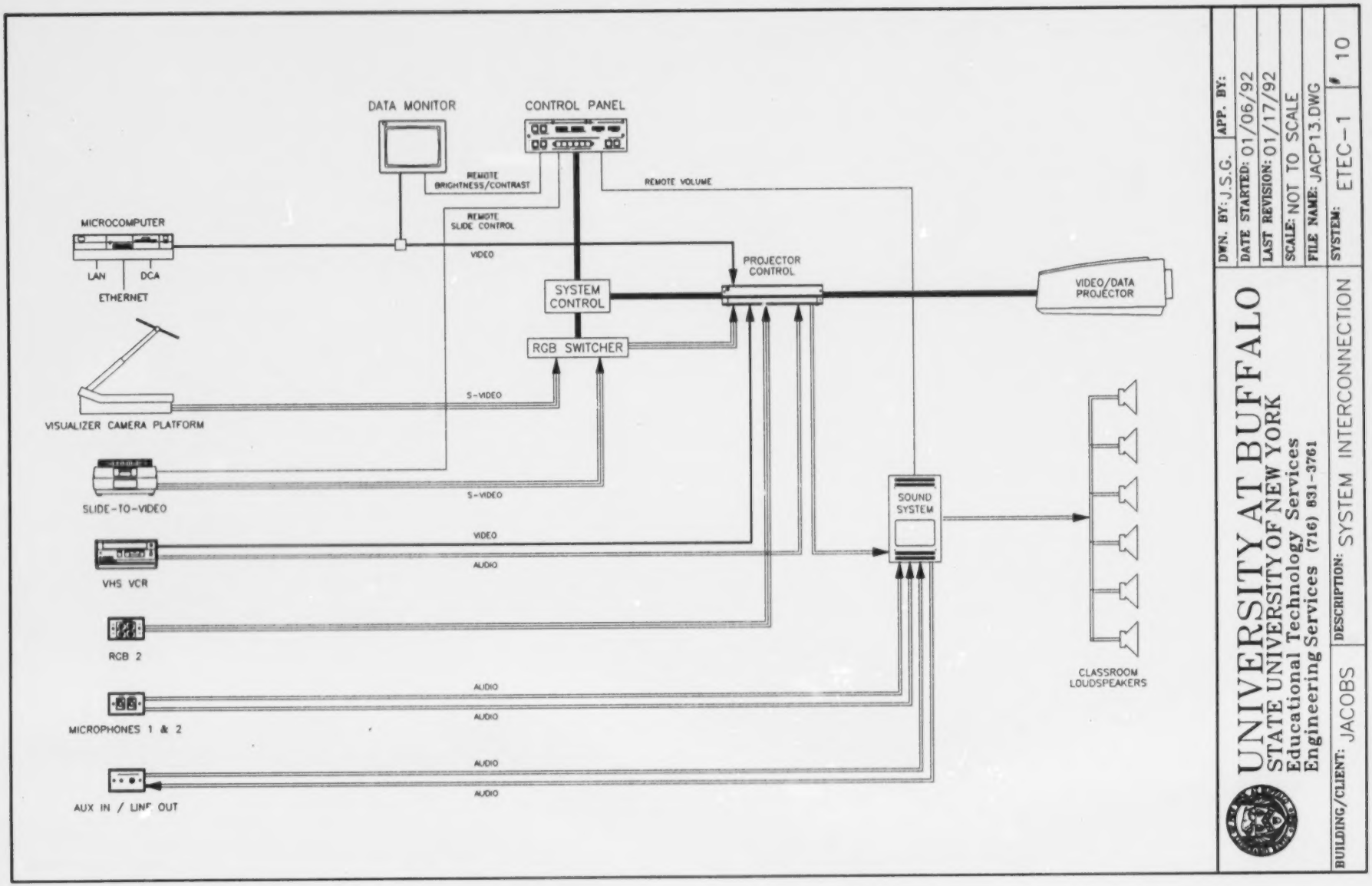
DWN. BY: J.S.G. | APP. BY:
DATE STARTED: 07/22/91
LAST REVISION: 12/20/91
SCALE: NONE
FILE NAME: JACP15.DWG
SYSTEM: ETEC-1 | 9
BUILDING/CLIENT: JACOBS | DESCRIPTION: CONTROL PANEL


DATA MONITOR
CONTROL PANEL
REMOTE BRIGHTNESS/CONTRAST
REMOTE VOLUME
REMOTE SLIDE CONTROL
MICROCOMPUTER
VIDEO
LAN
DCA
ETHERNET
PROJECTOR CONTROL
VIDEO/DATA PROJECTOR
SYSTEM CONTROL
RGB SWITCHER
S-VIDEO
VISUALIZER CAMERA PLATFORM
S-VIDEO
SLIDE-TO-VIDEO
SOUND SYSTEM
VIDEO
AUDIO
VHS VCR
RGB 2
CLASSROOM LOUDSPEAKERS
AUDIO
AUDIO
MICROPHONES 1 & 2
AUDIO
AUDIO
AUX IN / LINE OUT
UNIVERSITY AT BUFFALO
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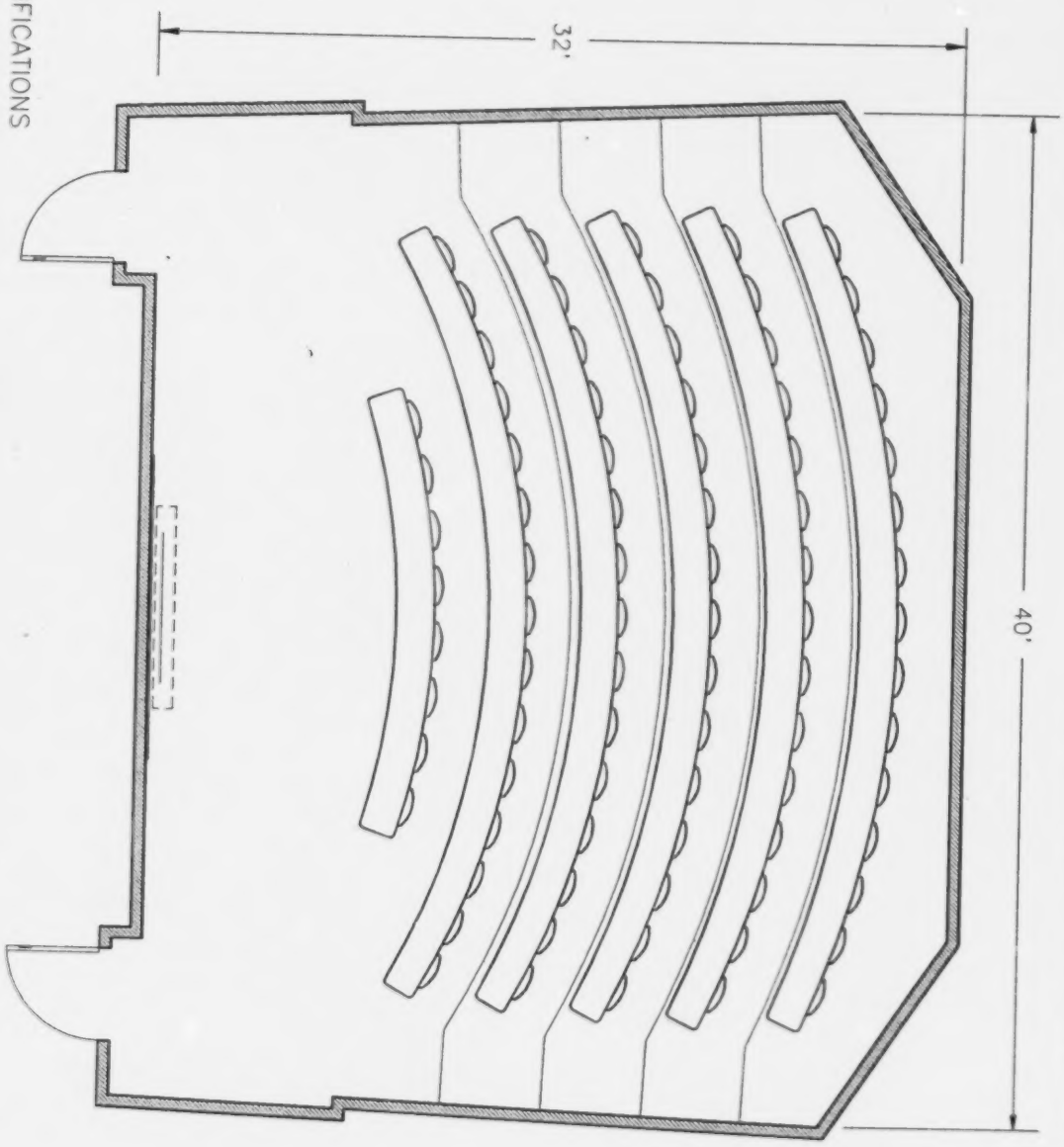
DWN. BY: J.S.G.
APP. BY:
DATE STARTED: 01/06/92
LAST REVISION: 01/17/92
SCALE: NOT TO SCALE
FILE NAME: JACP13.DWG
SYSTEM: ETEC-1
10
BUILDING/CLIENT: JACOBS
DESCRIPTION: SYSTEM INTERCONNECTION

BEFORE MODIFICATIONS



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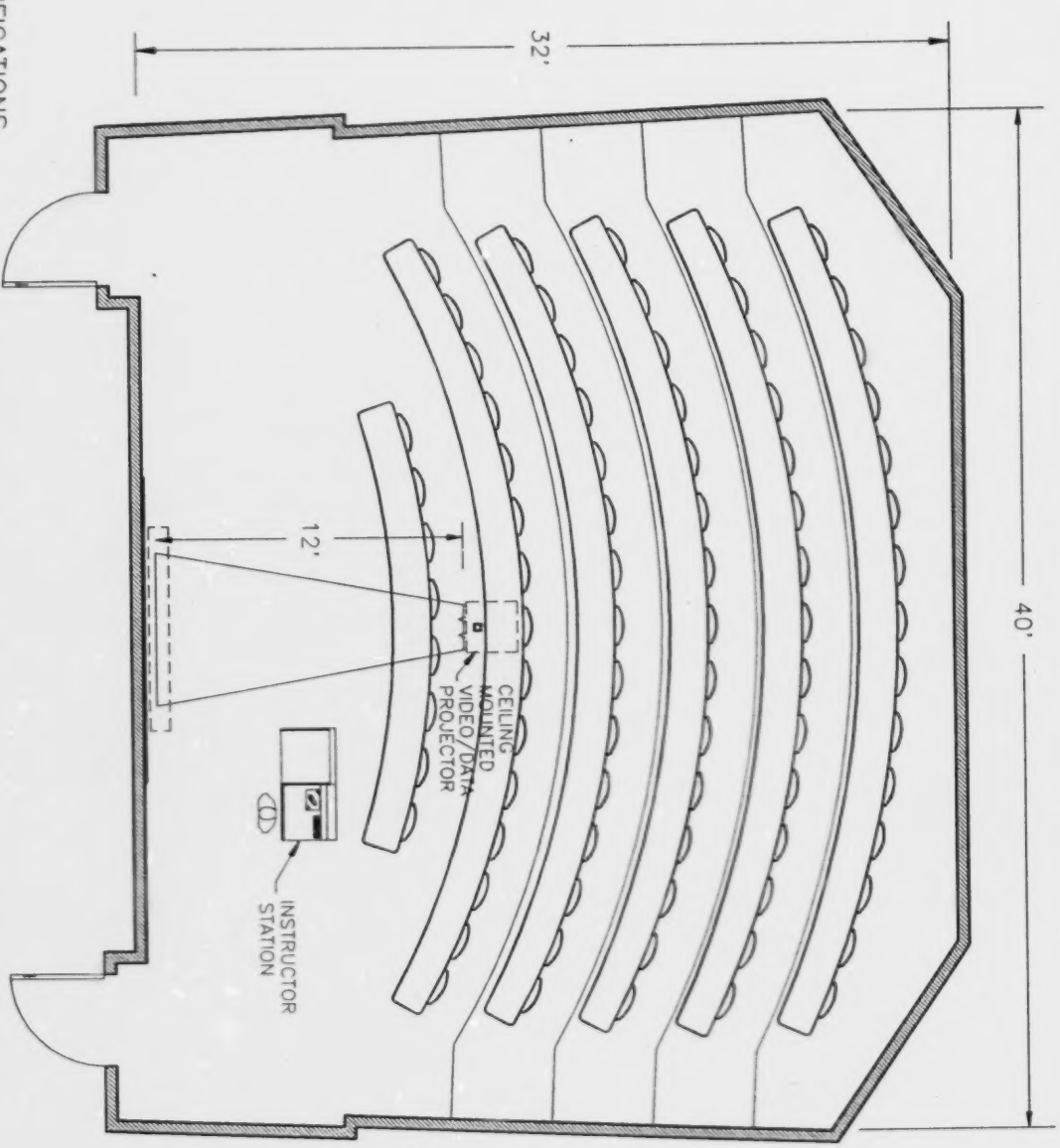
|---|---|---|---|
| DWN. BY: J.S.G. | APP. BY: | | |
| DATE STARTED: 01/28/91 | | | |
| LAST REVISION: 12/20/91 | | | |
| SCALE: NONE | | | |
| FILE NAME: JACPA1.DWG | | | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: ROOM LAYOUT | SYSTEM: ETEC-1 | # 11 |

AFTER MODIFICATIONS

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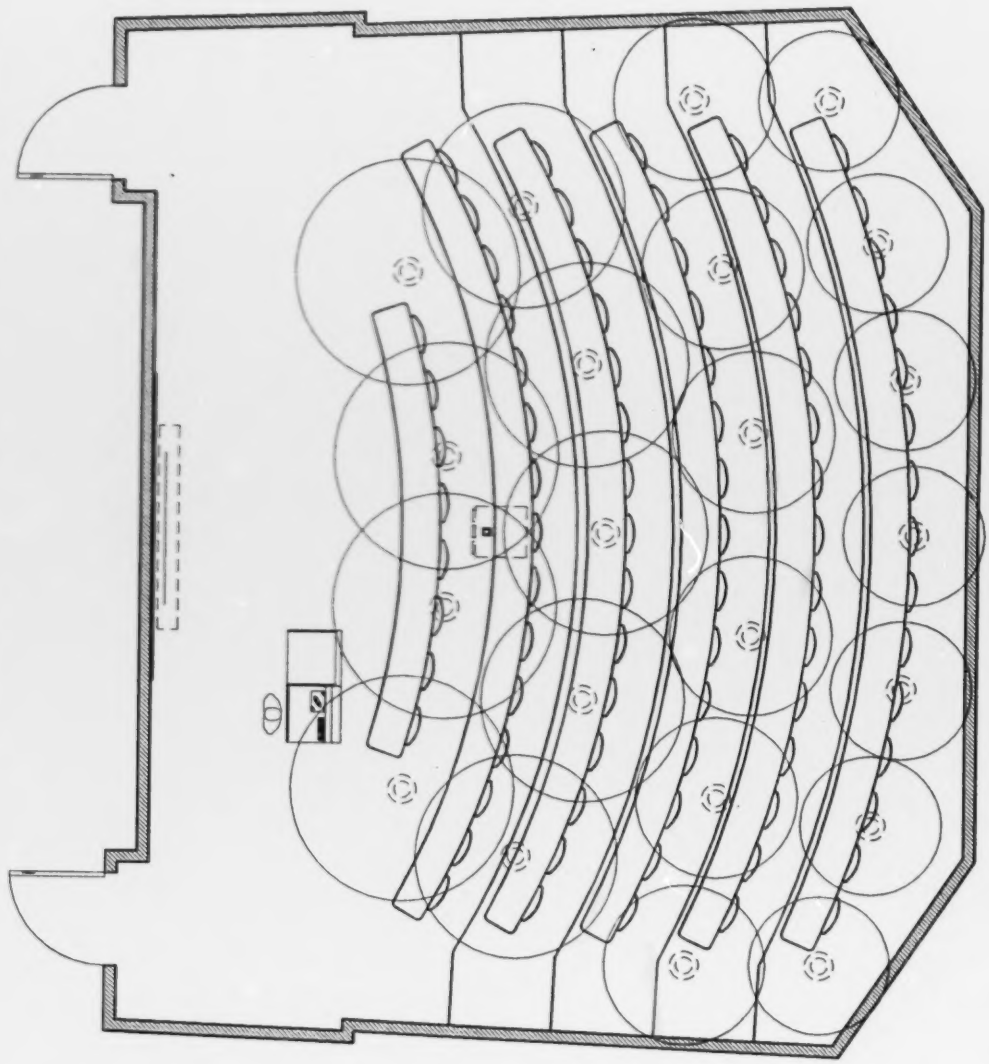
| | | | |
|---|---|---|---|
| UNIVERSITY AT BUFFALO<br>STATE UNIVERSITY OF NEW YORK<br>Educational Technology Services<br>Engineering Services (716) 831-3761 | | DWN. BY: J.S.G. | APP. BY: |
| | | DATE STARTED: 01/28/91 | |
| | | LAST REVISION: 12/20/91 | |
| | | SCALE: NONE | |
| | | FILE NAME: JACPA2.DWG | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: ROOM LAYOUT | SYSTEM: ETEC-1 | # 12 |

36

SPEAKER LAYOUT





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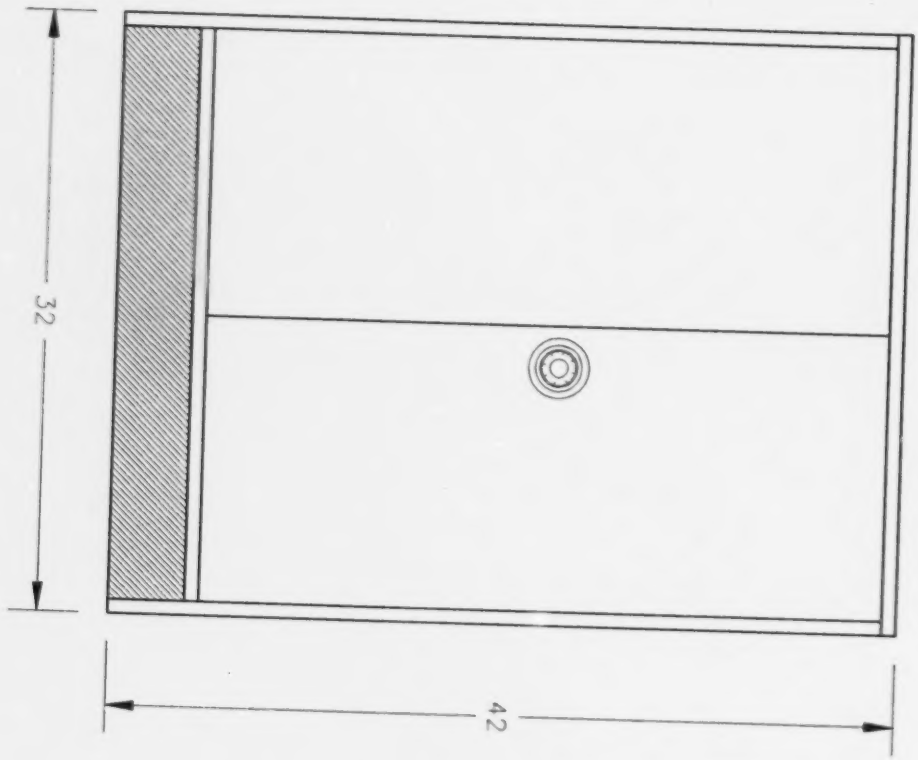
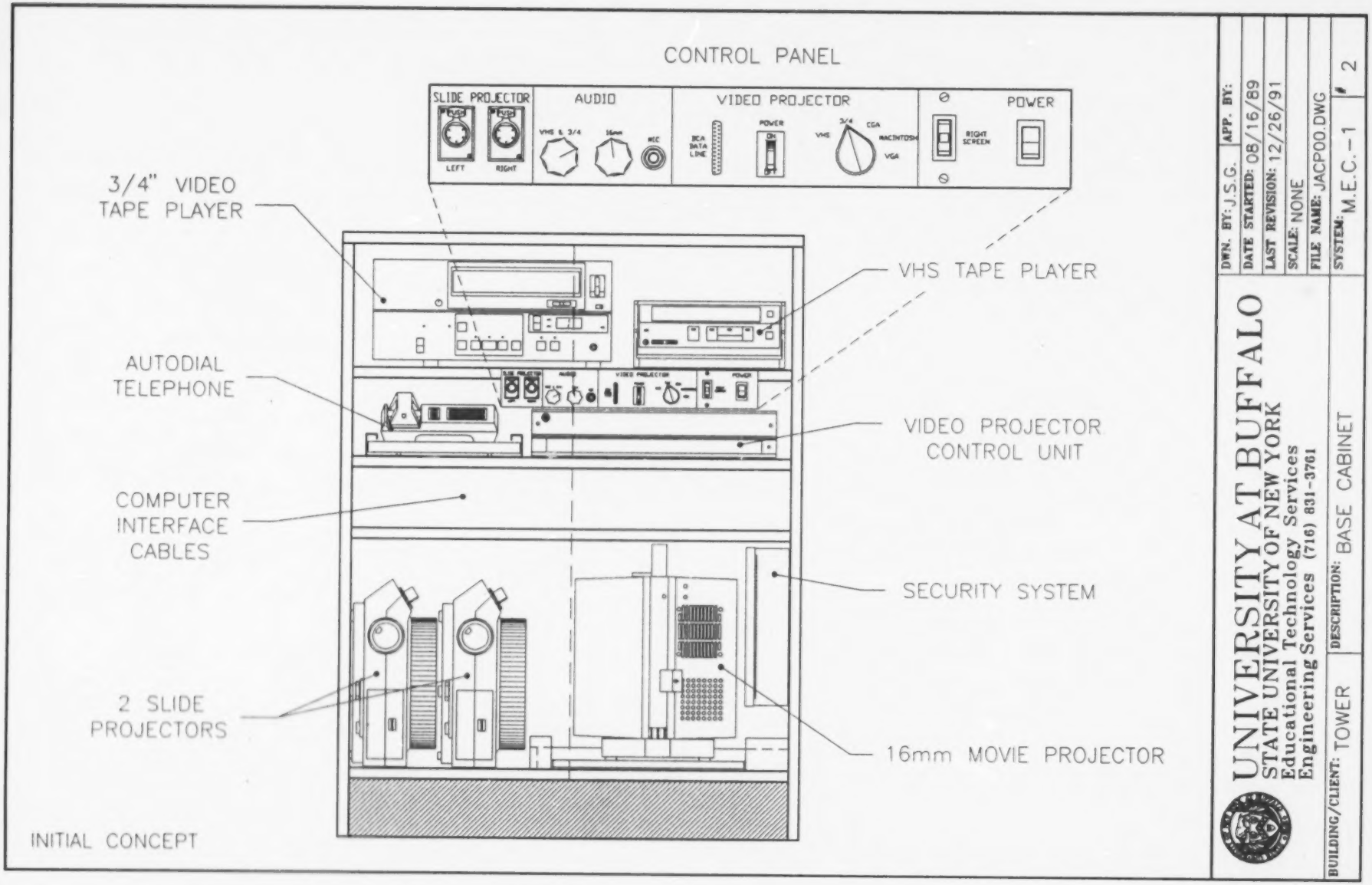
|---|---|---|---|
| DWN. BY: J.S.G. | APP. BY: | | |
| DATE STARTED: 01/28/91 | | | |
| LAST REVISION: 12/20/91 | | | |
| SCALE: NONE | | | |
| FILE NAME: JACPA3.DWG | | | |
| BUILDING/CLIENT: JACOBS | DESCRIPTION: ROOM LAYOUT | SYSTEM: ETEC-1 | # 13 |

ALL UNITS IN INCHES




| | | | |
|---|---|---|---|
| UNIVERSITY AT BUFFALO<br>STATE UNIVERSITY OF NEW YORK<br>Educational Technology Services<br>Engineering Services (716) 831-3761 | | DWN. BY: J.S.G. | APP. BY: |
| | | DATE STARTED: 08/16/89 | |
| | | LAST REVISION: 12/26/91 | |
| | | SCALE: NONE | |
| | | FILE NAME: JACP10.DWG | |
| BUILDING/CLIENT: | DESCRIPTION: BASE CABINET | SYSTEM: | # 1 |


CONTROL PANEL
SLIDE PROJECTOR
AUDIO
VIDEO PROJECTOR
POWER
3/4" VIDEO TAPE PLAYER
VHS TAPE PLAYER
AUTODIAL TELEPHONE
VIDEO PROJECTOR CONTROL UNIT
COMPUTER INTERFACE CABLES
SECURITY SYSTEM
2 SLIDE PROJECTORS
16mm MOVIE PROJECTOR
INITIAL CONCEPT
UNIVERSITY AT BUFFALO
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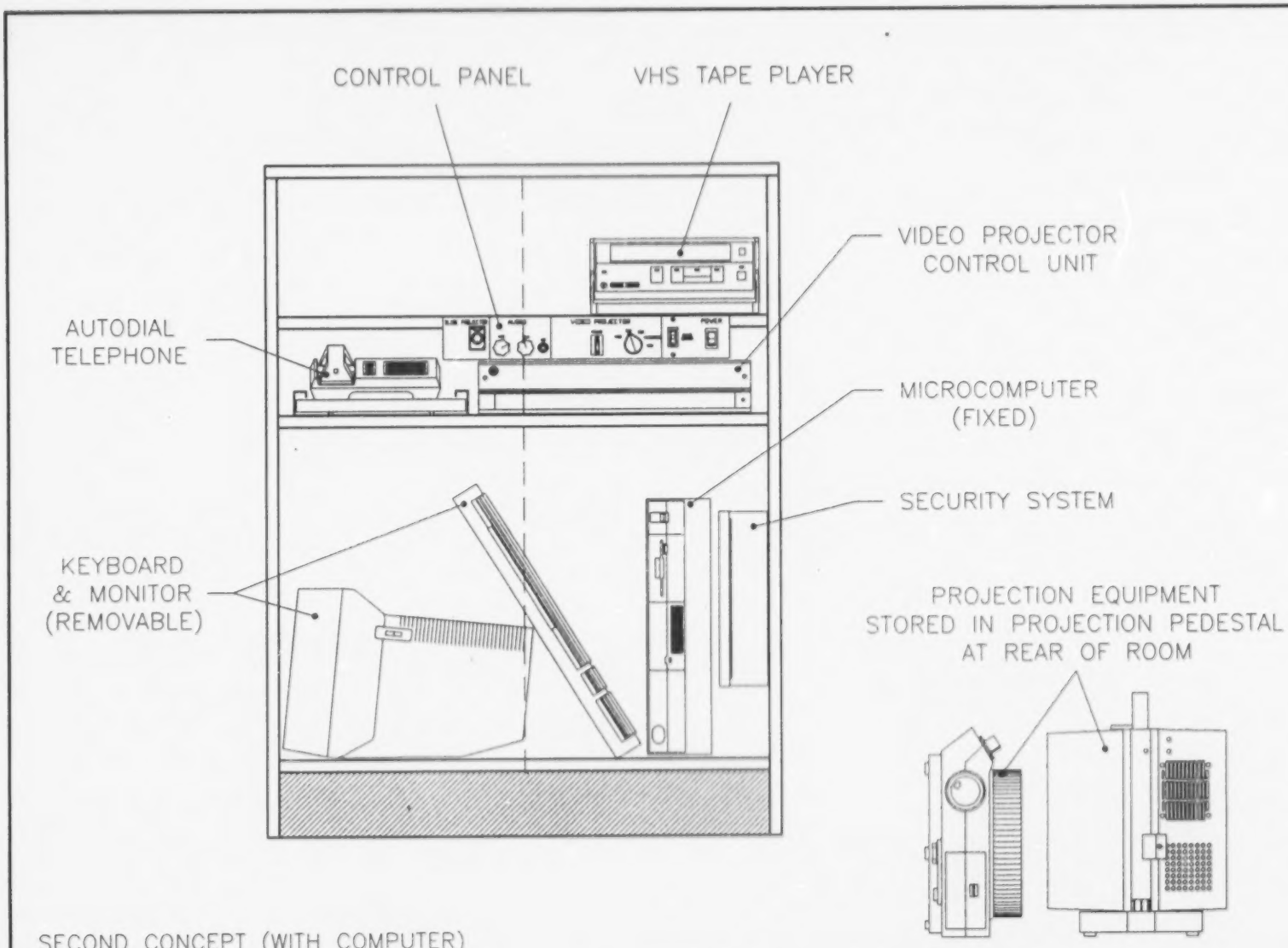
Educational Technology Services
Engineering Services (716) 831-3761
DWN. BY: J.S.G.
APP. BY:
DATE STARTED: 08/16/89
LAST REVISION: 12/26/91
SCALE: NONE
FILE NAME: JACP00.DWG
SYSTEM: M.E.C.-1
2
BUILDING/CLIENT: TOWER
DESCRIPTION: BASE CABINET




SECOND CONCEPT (WITH COMPUTER)

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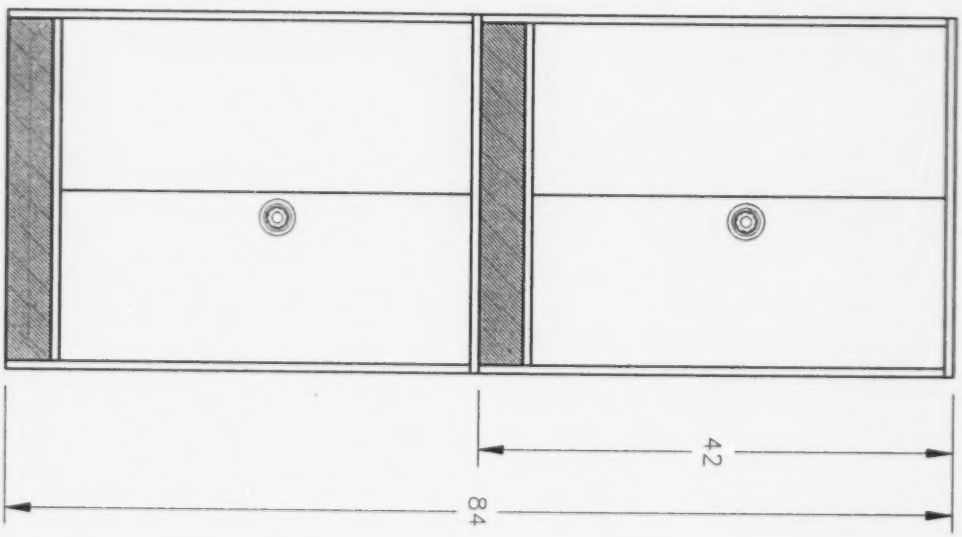
DWN. BY: J.S.G. | APP. BY:
DATE STARTED: 08/16/89
LAST REVISION: 12/26/89
SCALE: NONE
FILE NAME: JACP01.DWG
SYSTEM: M.E.C.-2 | 3

BUILDING/CLIENT: FILLMORE | DESCRIPTION: BASE CABINET

ALL UNITS IN INCHES

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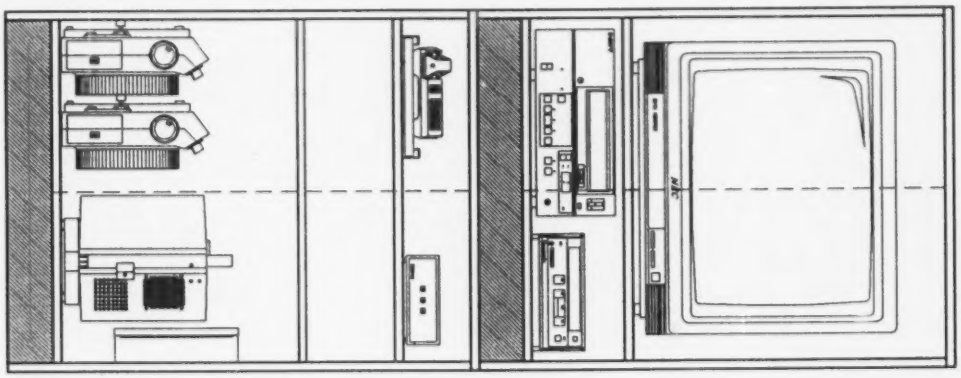
|---|---|---|---|
| UNIVERSITY AT BUFFALO<br>STATE UNIVERSITY OF NEW YORK<br>Educational Technology Services<br>Engineering Services (716) 831-3761 | | DWN. BY: J.S.G. | APP. BY: |
| | | DATE STARTED: 08/16/89 | |
| | | LAST REVISION: 01/28/92 | |
| | | SCALE: NO SCALE | |
| | | FILE NAME: JACP19.DWG | |
| BUILDING/CLIENT: CAPEN | DESCRIPTION: BASE CABINET | SYSTEM: M.E.C.-3 | # 4 |

THIRD CONCEPT (WITH STACKED CABINETS)



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| UNIVERSITY AT BUFFALO<br>STATE UNIVERSITY OF NEW YORK<br>Educational Technology Services<br>Engineering Services (716) 831-3761 | | DWN. BY: J.S.G. | APP. BY: |
| | | DATE STARTED: 08/16/89 | |
| | | LAST REVISION: 01/28/92 | |
| | | SCALE: NO SCALE | |
| | | FILE NAME: JACP18.DWG | |
| BUILDING/CLIENT: CAPEN | DESCRIPTION: BASE CABINET | SYSTEM: M.E.C.-3 | # 5 |

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## Jacobs 110 Equipment/Cost Data

| | Equipment and Components | Amount |
|---|---|---|
| 1. | Instructor Station | 4,300.00 |
| 2. | GE 410 Imager Video/Data Projector | 8,266.00 |
| 3. | Projector Mount | 525.00 |
| 4. | Video/Data Distribution Amplifier and Interface | 350.00 |
| 5. | RS-422 Control Cable | 215.00 |
| 6. | PS/2-55SX Computer, 8513 Monitor and Mouse | 2,887.00 |
| 7. | TOA W-912A Audio Amplifier and Backbox | 1,104.00 |
| 8. | TOA Accessory Modules, Plenum Wire and Microphone | 795.00 |
| 9. | Soundolier Speakers, Enclosures and Wire | 2,125.00 |
| 10. | GE VZ10 Wolf Video Visualizer | 7,142.00 |
| 11. | Panasonic AG-1000B VHS Videocassette Player | 483.00 |
| 12. | Navitar Videomate 2000 Slide Projector | 3,495.00 |
| 13. | Auto Dial Telephone | 220.00 |
| 14. | Electronic Alarm System and Accessories | 649.00 |
| 15. | Laser Pointer | 425.00 |
| 16. | DaLite Projection Screen Fabric and Tension Bar | 179.00 |
| 17. | Control Panel, Control Switches, Control System Components | 855.00 |
| 18. | Extron SW-4AR S-Video Switcher | 495.00 |
| 19. | Video Cables, Video Connectors | 330.00 |
| 20. | Engraving for Control and Connector Plates | 375.00 |
| 21. | Electrical Supplies | 475.00 |
| 22. | Miscellaneous Hardware | 135.00 |
| | Total..... | $35,825.00 |

# PURCHASE REQUISITION
## STATE UNIVERSITY OF NEW YORK
## AT BUFFALO

REQUISITION
No. 924082 S

PURCHASE ORDER NUMBER

VENDOR RABCO DESIGN, INC.
Attn: R. A. Barone
STREET 8925 Sheridan Drive
CITY & STATE Clarence, NY 14031
(716)631-3010
FEDERAL I.D. #

REQUISITION DATE 5/7/91
STATE CONTRACT # GROUP #
ACCOUNT NUMBER 900131
FACILITY

THIS IS NOT A VENDOR'S ORDER

**INSTRUCTIONS:**
1. MAKE SEPARATE REQUISITION FOR EACH VENDOR AND COMMODITY GROUP.
2. ATTACH ALL LETTERS, QUOTATIONS, AND OTHER APPLICABLE PAPERS TO THIS REQUISITION.
3. FORWARD THIS REQUISITION TO THE PURCHASING AGENT.
4. USE DOUBLE SPACE ON ITEM ENTRIES.

DEPARTMENT Educational Technology Services
Attn: Ron Cichocki
SHIP TO BUILDING Wende ROOM NO. 318
REQUESTED DELIVERY

| F.O.B. | SHIP VIA | TERMS | BUYER |
|---|---|---|---|
| ☐ DESTINATION ☐ SHIPPING POINT _____ CITY | | | |

| Item No. | Description of Material/Service | Quantity | Unit | Price | Amount |
|---|---|---|---|---|---|
| 1 | Construction of a custom instructor station consisting of separate podium and cabinet sections.<br><br>All cabinetry hardware to be provided under this order must be reviewed and approved by the University project coordinator. Equipment items and control panels referenced in the enclosed attachments are not to be considered part of this order.<br><br>Also to be provided under this order are four (4) full width adjustable shelves as accessory items.<br><br>All drawings and construction notes enclosed as attachments to this order are for reference purposes only. Contractor is required to completely review and ascertain all construction requirements and dimensions with the University project coordinator prior to beginning construction.<br><br>PW: Donna R. / ETS / 341 Abbott Hall | 1 | ea | | |

PLEASE CHECK APPROPRIATE BOX/BOXES:
☐ MINORITY-OWNED BUSINESS ☐ SMALL BUSINESS (UNDER 100 EMPLOYEES) ☐ HANDICAPPED ☐ WOMEN-OWNED BUSINESS

SOLICITED MBE WBE

IN ACCORDANCE WITH ☐ TELEPHONE ☐ WRITTEN QUOTATION BY DATED OUR REF NO.

| PO/Contract | Line | Act | Amount | Dept. | Cost Center | Var. | Yr. | Object |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

| FUNDS AVAILABLE BY | SUNY ACCOUNT | SUB | OBJECT |
|---|---|---|---|
| DATE | | | |

MEC 50

White: Purchasing Copy
Pink: Requisitioner - Detach and keep

Ronald Cichocki 831-3761
REQUESTED BY TELEPHONE NO.

AUTHORIZED SIGNATURE

## Custom Instructor Station Construction Notes

1. Podium and Cabinet to be constructed and finished as separate, stand-alone items.

2. Podium and Cabinet to be 3/4" particle board construction; finished all exterior sides with Formica brand #118 Finnish Oak (or equal) laminate, and with Melamine all interior surfaces.

3. Podium keyboard shelf, and top two Cabinet shelves, to be on slide-out rails capable of supporting 150 lbs. All other shelving to be adjustable (32mm system), and perforated to facilitate airflow. Shelf cutouts required for wiring access.

4. All doors fitted with hinges allowing doors to be opened a full 270 degrees. All doors to also include matching combination locks.

5. Podium monitor compartment to be constructed to accommodate either an IBM 8513 or IBM 8515 monitor. A monitor mounting configuration is required which will accommodate either monitor model, and allow for monitor positioning adjustment.

6. Podium work surface to be constructed as a removable component, with flush-mounted safety glass panel over the monitor area; and, a surface cutout for a flush-mounted system(s) control panel.

7. Provisions must be made in the construction of both the Podium and Cabinet sections to permit vertical airflow and equipment ventilation.

8. Bottom panels in both the Podium and Cabinet constructed so as to be removable, or to provide access to the base area for ease in connection of system(s) wiring.

9. Slide-out platform to be provided for the Campus Telephone.

10. Cabinet connector panel constructed so as to be removable.

11. Separate 2" x 4" (nominal) floor mounting frame, to be provided, for both the Podium and Cabinet to facilitate installation and reinforcement for anchoring hardware.

5/7/91

# Jacobs 110
# Educational Technology Equipped Classroom
# Faculty Responses to Questionnaire

Name:_____

Department:_____

Course Taught:_____

**Note: 12 out of 15 Responses as of 1/27/92**

1. Please indicate which media/classroom support technologies you use in Jacobs 110.

| | | | |
|---|---|---|---|
| IBM PS/2 Computer | Always [3] | Sometimes [6] | Never [3] |
| Wolf Visualizer Camera Platform | Always [10] | Sometimes [2] | Never [ ] |
| Navitar Video Slide Projector | Always [ ] | Sometimes [4] | Never [8] |
| VHS Videotape Player | Always [ ] | Sometimes [8] | Never [4] |
| Laser Pointer | Always [1] | Sometimes [6] | Never [5] |
| P.A. System | Always [ ] | Sometimes [1] | Never [11] |
| Conventional Overhead Projector | Always [3] | Sometimes [3] | Never [6] |

Comments: Do plan to use Navitar next semester.; Great System!; Laser pointer did not work last time I tried it. Slide projector and video tape player may be used in future if I can be assured that I can get room again.; When using Wolf Visualizer I did not use conventional overhead projector.; The videotape player was wonderful to be able to use and it enhanced the class. The visualizer was also a great help after I learned how to focus and use it properly.;

2. Have you experienced any difficulty in using any of the equipment or classroom support systems in Jacobs 110?

| | | | |
|---|---|---|---|
| IBM PS/2 Computer | Always [ ] | Sometimes [4] | Never [6] |
| Wolf Visualizer Camera Platform | Always [1] | Sometimes [5] | Never [5] |
| Navitar Video Slide Projector | Always [ ] | Sometimes [1] | Never [3] |
| VHS Videotape Player | Always [ ] | Sometimes [1] | Never [6] |
| Laser Pointer | Always [ ] | Sometimes [2] | Never [5] |
| P.A. System | Always [ ] | Sometimes [ ] | Never [4] |
| Conventional Overhead Projector | Always [ ] | Sometimes [ ] | Never [7] |

Comments: Not enough space on the desk to keep material. Had some problems accessing software on the LAN.; Had some problems with the connections to the LAN. Laser pointer stopped working early in the semester so I stopped using it.; Sometimes I had difficulty getting the right focus on visualizer. Can't fit a full 8 1/2" X 11"

page entirely on screen.; IBM needs updated Quattro program (v. 3). Wolf has difficulty in focus - also colors weak. However zoom is valuable.; I have not had any reliability problems other than the problem with the locks early in the semester.; The visualizer is awkward to use. It is hard to position oneself to use it. Moreover it does not reproduce ordinary transparencies very well.;Visualizer doesn't show materials as well as the conventional overhead. It's too dark and lined, slide projector sometimes doesn't eject properly, problem with computer was a software problem with accessing the LAN-it was fixed.;I keep back-ups for any technology just in case.; There was a learning process for me: the equipment was all right;

3. To what extent do you use the computer display capabilities in Jacobs 110?

| | | | |
|---|---|---|---|
| LAN to Jacobs Computer Lab | Always [1] | Sometimes [6] | Never [5] |
| IBM Mainframe | Always [1] | Sometimes [3] | Never [8] |
| VAX Cluster | Always [ ] | Sometimes [1] | Never [10] |
| PC Hard Drive | Always [ ] | Sometimes [8] | Never [4] |
| PC/Floppy Disk | Always [ ] | Sometimes [9] | Never [3] |

Comments: I haven't yet developed much for it. I will if I can expect to use computer in future classes.; I have no need of the computer in this course.; I'm reluctant to build my course around the technical equipment in the optimal manner since I can't count on having it available each semester. This is particularly true of the computer display (PC) and VHS video player. Reliable future access to these for a particular course is essential to justify the fixed cost of course development.;

4. Please list the computer software programs that you have used in Jacobs 110 during the 1991 Fall Semester: My own software program such as EVENT study program (mainframe) and OPTION valuation programs (PC).; Lotus and math CAD.; Draw Perfect and SAS.; Procomm.; Quattro Pro.; Kermit, SQL, DS, XEAIT and Mainframe Lotus.; Lotus 1-2-3, d Base, Word Perfect.; d Base, Lotus 1-2-3, DSSPOM (Lofti and Pegels).;

5. Are there any computer software programs you would like access to in Jacobs 110 that currently are not available? Yes 3 No 5
If yes, please list: IFPS, EXSTS.; Many, most not part of typical applications.; I need availability of Draw Perfect on my own computer for class preparation.; I have not checked to see if it is there but I would like to use Draw Perfect next semester.;

6. What features of the Wolf Visualizer Camera Platform do you use in your teaching?

| | | | |
|---|---|---|---|
| Transparencies | Always [6] | Sometimes [5] | Never [1] |
| Opaque (hardcopy) | Always [5] | Sometimes [6] | Never [1] |
| 3-Dimensional Objects | Always [ ] | Sometimes [3] | Never [7] |

Comments: Doesn't show transparencies very well. Zoom feature with hard copy is useful.; I love it!;

7. Do you prefer the conventional overhead projector over the Wolf Visualizer Camera Platform in Jacobs 110? Yes 2 No 8
If yes, why? Sometimes the conventional is a nice change and pace. I don't like having the lights down all of the time.; Only if colors are very important.; Ordinary transparencies do not seem to reproduce very well and it takes too long to move around the machine while teaching.; Depends - visualizer is too dark to show opaque or transparency material well, but it's ability to "zoom" and project opaque is a plus. I use both the overhead and the visualizer.; However it is easier to write while speaking at the same time if I use the conventional overhead projector.;

8. Please rate the quality of the projected video images in Jacobs 110:

| | | | | |
|---|---|---|---|---|
| Computer Images | Excellent [4] | Good [5] | Marginal [ ] | Poor [ ] |
| Wolf Visualizer Images | Excellent [3] | Good [5] | Marginal [2] | Poor [ ] |
| 35mm Slide Images | Excellent [ ] | Good [2] | Marginal [1] | Poor [ ] |
| VHS Video Tape Images | Excellent [5] | Good [4] | Marginal [ ] | Poor [ ] |

Comments: The visualizer doesn't show a wide enough image.; Visualizer - Advantages: ability to show hard copy, color originals, ability to zoom. However the visualizer is a mixed blessing. While it does have the advantages mentioned above, the sharpness of the image produced leave a lot to be desired. For transparencies use the old fashion overhead projector is superior on the sharpness dimension. But because of the versatility of the visualizer I used it extensively this semester.;

9. Please rate the features of the custom built teaching station:

| | | | |
|---|---|---|---|
| Ease of opening cabinet doors | Good [9] | Marginal [2] | Poor [1] |
| Accessibility of equipment | Good [9] | Marginal [2] | Poor [1] |
| Layout of the control switches on podium | Good [11] | Marginal [ ] | Poor [1] |
| Placement of computer display monitor | Good [11] | Marginal [ ] | Poor [1] |
| Size (height and width) of podium | Good [9] | Marginal [3] | Poor [ ] |
| Size (height and width) of modular cabinet | Good [9] | Marginal [3] | Poor [ ] |
| Overall aesthetics of teaching station | Good [10] | Marginal [2] | Poor [ ] |

Comments: Easy to open cabinet doors after locks were changed.; Only problem is that the Wolf Visualizer is directly in front of the flat work space. Makes using the flat table hard.; No place to keep transparencies. Wolf visualizer an impediment to access. Poorly designed podium. I spoke to Jim about it earlier.; I need a little more room. The visualizer should probably be in different position.; I would like more space to spread out for the right of the module (north of it).; One major problem is the placement of the visualizer. Since most professors are right

handed it would be a lot easier to use it if it were to the right of the professor rather than to the left. Also it is too low. I am constantly having to bend over into awkward positions to use it. Also when using it, it pretty much precludes using the flat top surface to hold notes. The slanted podium top does not hold enough notes and when I try to use it the notes fall on the floor. Consequently I have used the overhead projector (positioned to the right of the podium) as a table to hold my teaching notes. This is very awkward.; Doors are much better now that the locks are fixed.; With all that fine equipment, one would think we'd be able to equip the place with a decent stool with a back and leg coasters. What's in there now isn't fit for your kitchen.;

10. Please rate the overall classroom environment in Jacobs 110:

| | | | |
|---|---|---|---|
| Classroom lighting | Good [12] | Marginal [ ] | Poor [ ] |
| Light dimming capabilities | Good [12] | Marginal [ ] | Poor [ ] |
| Lighting for student note taking | Good [9] | Marginal [3] | Poor [ ] |
| Room acoustics | Good [9] | Marginal [1] | Poor [2] |
| Screen size | Good [12] | Marginal [ ] | Poor [ ] |
| Chalkboard size | Good [10] | Marginal [1] | Poor [1] |
| Condition of student seating | Good [12] | Marginal [ ] | Poor [ ] |
| Heating and cooling (comfort) | Good [8] | Marginal [1] | Poor [2] |
| Room cleanliness | Good [7] | Marginal [2] | Poor [3] |

Comments: The air conditioning is so blasted loud at times the video or instructor can't be heard. The room is filthy at times.; Noise (fan or air conditioner) is at times bad.; When the air conditioner is on I can't hear student's questions from the rear. Others have told me the same thing.; Too bad we don't more rooms with this equipment.; Since I use the overhead mostly, the screen is always down. It's not a major problem for me but for some who like to use the screen and the chalkboard when the screen is down very little chalkboard is visible.; Occasional noise from from air units. Lighting has to be somewhat low to use Wolf Visualizer.; Chalkboard not usable when the equipment is in use.; A mobile chalkboard would be very helpful.;

11. When making comparisons with traditional University classrooms have the media/ classroom support technologies in Jacobs 110 helped in:

| | | | |
|---|---|---|---|
| Meeting your course objectives? | Yes [9] | No [ ] | No Difference [3] |
| Providing greater flexibility in presenting your course materials? | Yes [10] | No [ ] | No Difference [2] |
| Presenting course materials in greater depth? | Yes [9] | No [ ] | No Difference [3] |
| Making you a more effective teacher? | Yes [8] | No [ ] | No Difference [3] |

Comments: Excellent enhancement to teaching.; I need more practice.; The ability to utilize this equipment will vastly change the way I teach this course. I see it as a

major advance for the students.; I have not tried to use the equipment in the 7-8 weeks for reasons mentioned above.; In meeting course objectives I see great potential for the core MBA economics courses but it would cost me a large amount of fixed cost, which I would invest if I could get some assurance of being able to use it for several semesters.;

12. Have the media/classroom support technologies in Jacobs 110 helped in:

| | | | |
|---|---|---|---|
| Generating student interest in course? | Yes [7] | No [ ] | No Difference [4] |
| Students being more attentive in class? | Yes [8] | No [ ] | No Difference [3] |
| Students better able to grasp course material? | Yes [8] | No [ ] | No Difference [3 ] |
| Students more willing to participate in class discussions? | Yes [4] | No [1] | No Difference [6] |
| Students scoring higher in test grades? | Yes [4] | No [ ] | No Difference [7] |

Comments: For students scoring higher in test grades really can't tell.; It appears that class participation is somewhat discouraged.; The technologies have helped in facilitating student presentations.; Hard to tell.;

13. Are you in favor of the University making available additional classrooms similar to the capabilities provided in Jacobs 110? Yes 12 No ___ No Opinion ___

14. Please provide any additional comments you may have that will help us evaluate the effectiveness of Jacobs 110 or will help us improve this teaching facility.

Definitely need more classrooms like Jacobs.; I think faculty teaching in this room should be given a short course on the use of the equipment before they start teaching. This will help them in preparing class material accordingly and make full use of the equipment.; Great technology. I am finally able to convey the qualities of subject.; Other that the problems associated with using the visualizer and rather marginal sharpness of its picture, the room presents tremendous flexibility for instructors to interject different types of materials into the courses. I see this as a major benefit to the students.; We need to use it several times sequentially to justify the investment in class preparation.; The key word is similar classrooms. If they can not improve either the accessibility or the imagery of the equipment then the expense is invalid. Most of the classrooms suffer from poor heating and cooling and often very ineffective seating arrangements for large courses. These need to be addressed before one worries about visual aid equipment.; It's a very nice facility. If the visualizer worked better with opaque and transparency material it would be almost perfect.; Assurances must be given. We need (like 3 year) commitment on being able to use the room.; Basic problem is that I will not be assigned to Jacobs 110 any longer. The criterion for assignment is whether one uses the IBM computer in the course taught, since a VHS player can be used in other rooms without the work station. Farewell to the visualizer and to the other equipment. We ought to have foreseen this development. The key to the use of these rooms will be the computer tie in. Perhaps some rooms equipped with the computer should be developed.